Circuitlink International

BrakeCheck User Manual

Fraser Gauge and Tool
1352 Harvard Street
Grosse Pointe, MI 48230
313-882-9192
geoff@frasergauge.com

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elcomes comments or suggestions relating to the product or this manual. All correspondence should be addressed to:

Fraser Gauge and Tool
(313) 882-9192
geoff@frasergauge.com

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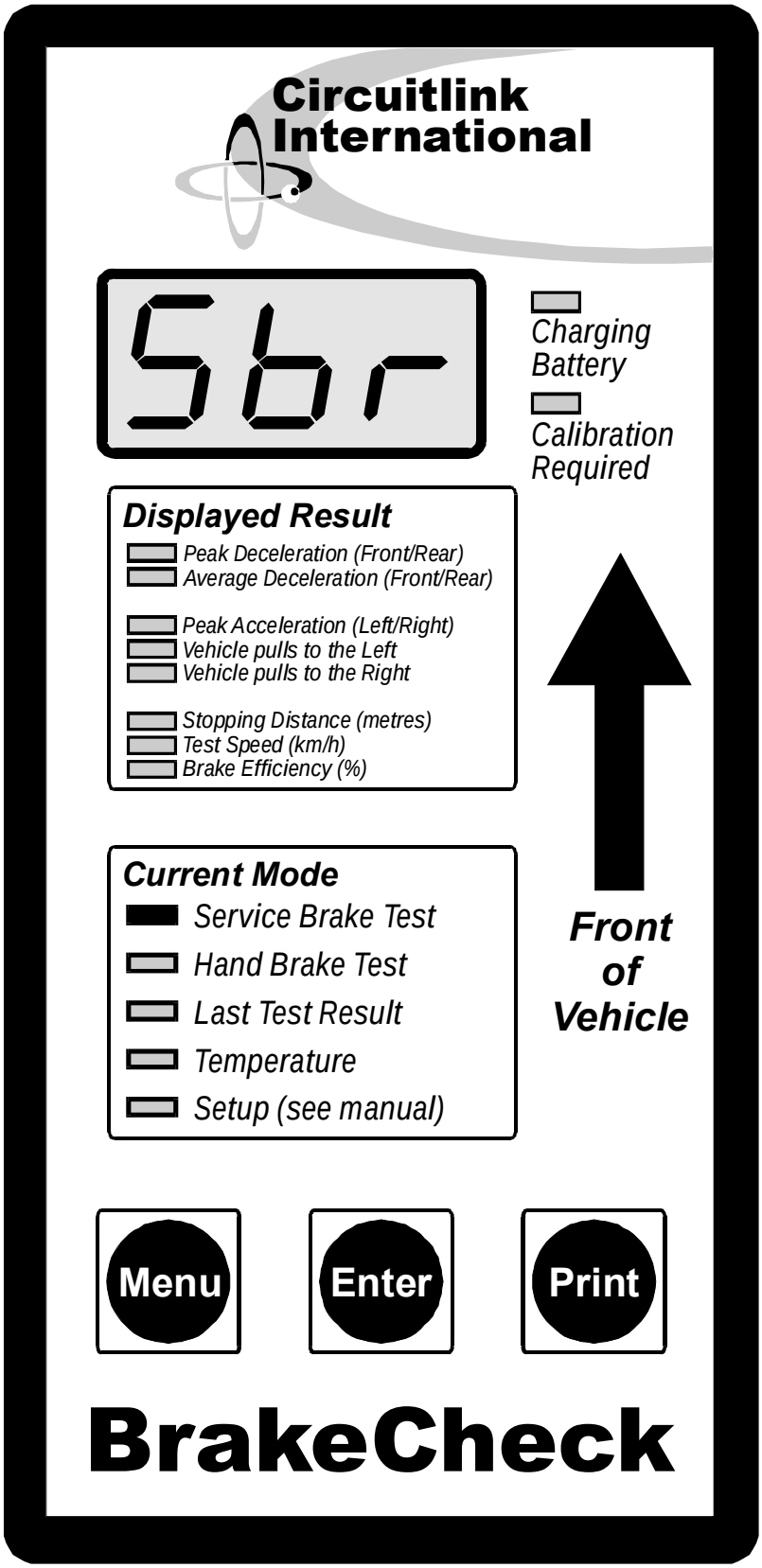

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Welcome!

Congratulations on purchasing a Circuitlink BrakeCheck unit!

Please take some time to read this manual and familiarise yourself with the operation of the BrakeCheck unit.

Unit Description

The Circuitlink BrakeCheck is a self-contained unit, incorporating an Accelerometer, which is used to determine your vehicle's braking performance. It can also be used to monitor the condition of the brake components in conjunction with normal, routine inspection.

The BrakeCheck will test the performance of both the Service Brake (foot brake) and the Hand Brake (parking brake) and will report the magnitude of any sideways pull detected during testing.

All of the BrakeCheck's functions are controlled with the three keys on the front panel. The unit's status, Current Mode and Displayed Result are all indicated by the LED's.

The BrakeCheck has a 3 character LED display which shows the unit's status, the test to be performed and the test results. It will also display the temperature of the unit in both ^{0}C and ^{0}F.

The optional printer can be configured to operate via cable connection or wireless Infra-Red. The Battery Charger is used as the power supply for the printer.

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Charging the Battery

A Battery Charger has been provided. The BrakeCheck should be recharged regularly to ensure it is ready to use when required.

The BrakeCheck should only be charged when the temperature of the unit is between 0^0C and 43^0C (32^0F & 109^0F)

Charge LED Flash Codes

The “Charging Battery” LED gives a visual indication of the charging mode status.

For units with serial number BRK02200 or later:

Charging Battery LED	***Description***
Off	The charger is off
On	Fast charge mode
Blink, on 1sec, off 1sec	Battery ready to use
Blink 5 times per second	Normal charging
One short blink per second	Battery temperature too high, unplug the charger and allow unit to cool before trying again *
Two short blinks per second	Battery voltage too high, or battery disconnected *
Three short blinks per second	Battery is cold, charger will warm up the batteries before normal charging can start *
Four short flashes every two seconds	Battery has failed to charge *

* If this happens repeatedly the BrakeCheck should be returned for servicing.

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For units with serial number prior to BRK02200:

Charging Battery LED	***Description***
Blink	Battery ready to use **OR** At power-up or insertion, Battery is cold as topping charge is applied
On	Soft-Start/Fast charge
Off	Power down or over/under voltage shut down

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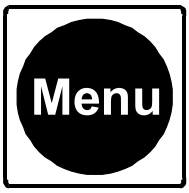
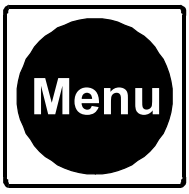
Function Keys



Hold the **Menu** key down for 2 to 3 seconds to turn the BrakeCheck **ON**



Press the **Menu** key repeatedly to change the **Current Mode**.

Press the **Enter** key to change the **Displayed Result**.

Press the **Print** key to send the test results to the Printer (if available) via either the cable or the Infra-Red link, depending upon the configuration of your printer.

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When the BrakeCheck is turned ON, the **Service Brake Test** LED will be lit and the display will show:

The unit is ready to begin the Service Brake Test routine.

Press

the **Hand Brake Test** LED will be lit and the display will show:

The unit is ready to begin the Hand Brake Test routine.

Press

again, the **Service Brake Test** LED and the **Last Test Result** LED will be lit and the display will show:

The unit is ready to display the results of the most recent Service Brake Test.

Press

again, the **Hand Brake Test** LED and the **Last Test Result** LED will be lit and the display will show:

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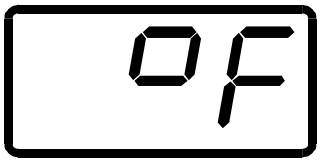
The unit is ready to display the results of the most recent Hand Brake Test. If your unit is a Quarry testing type it will say “HbI” instead, meaning the uint is ready to do an incline test.

Press

again, the **Temperature** LED will be lit and the display will show:

Press

again, the **Temperature** LED will be lit and the display will show:



Press

again, if your unit supports multiple test results the display will show:

The unit is ready to clear the log memory

Pressing

at this stage will erase all the stored test results.

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Performing a Test

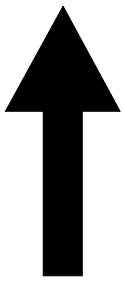
Setting the unit up for a Test

Ensure the battery is charged sufficiently.

Choose a safe test area that is as level as possible.

The test area should be straight, flat and long enough to attain the recommended test speed and then to stop the vehicle quickly and safely. Avoid loose and wet surfaces. Avoid areas where there are other vehicles or people.

Place the BrakeCheck in the vehicle with the arrow pointing in the direction of travel.



Front of Vehicle

NB. The BrakeCheck should be placed on the vehicle seat or front floor and as close as possible to parallel with the road surface. The unit is fitted with rubber feet to help prevent it from moving around during the test.

In the UK, when carrying out a Statutory MOT Test it is essential that the brake test procedure detailed in the latest version of the MOT Inspection Manual be followed.

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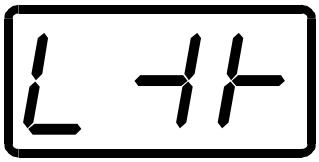
To Test the Service Brake

Press Menu until the Current Mode is **Service Brake Test**.

Press Enter once, the display will indicate whether or not the unit is level enough to perform the test. Before an accurate test can be performed the display must show:



Do NOT tilt the unit to achieve level. Find a more level vehicle test area and ensure the unit is parallel with the road.

Note: If you have a Quarry type unit, the display will show “C 1”, “C 2”, “C 3” or “C 4” before levelling. These are ground condition codes, press Menu to switch between codes and Enter to select the code. The ground condition codes are:
C1 – “Wet Ground”
C2 – “Dry Ground”
C3 – “Snow/Ice Ground”
C4 – “Tarmac Ground”
The selected code does not change the operation of the BrakeCheck, it is just stored and printed later.

Press Enter again after levelling, the unit is now ready to perform the test and the display will show:

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Accelerate the vehicle smoothly to approximately 35kph (22mph).

Without causing the vehicle to skid, apply heavy and consistent pressure to the Service Brake until the vehicle comes to a complete stop as quickly as possible.

The Test is now complete, move the vehicle off the roadway if necessary.

At the end of the test (if the unit supports multiple tests) the unit will show what 'log' number the test was stored in, for example:

This means the test result was stored in log number 36. You will have to remember this if you want to recall this result.

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Service Brake Test Results

If the unit powers down, go to the **Service Brake Test / Last Test Result** mode and press

Then, (or if the unit did not power down),

the **Peak Deceleration (Front/Rear)** LED will be lit and the display will show a value, eg:

Press

and the **Average Deceleration (Front/Rear)** LED will be lit and the display will show a value, eg:

Press

again, the **Peak Acceleration (Left/Right)** LED will be lit and either the **Vehicle pulls to the Left** OR the **Vehicle pulls to the Right** LED will be lit. The display will show a value, eg:

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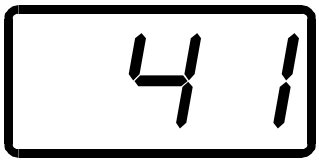
Press

again, the **Stopping Distance (metres)** LED will be lit and the display will show a value, eg:

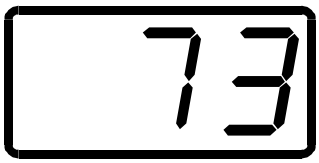
Press

again, the **Test Speed (km/h)** LED will be lit and the display will show a value, eg:



Press

again, the **Brake Efficiency (%)** LED will be lit and the display will show a value, eg:



Press

again, the **Peak Deceleration (Front/Rear)** is displayed again.

These results will be retained until the next Service Brake test is performed.

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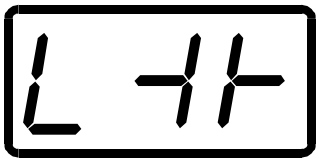
To Test the Hand Brake

Press

until the Current Mode is **Hand Brake Test.**

Press

once, the display will indicate whether or not the unit is level enough to perform the test. Before an accurate test can be performed the display must show:



Do Not tilt the unit to achieve level. Ensure the unit is parallel with the road surface and then, if necessary, locate a more level vehicle test area.

Note: If you have a Quarry type unit, the display will show “C 1”, “C 2”, “C 3” or “C 4” before levelling. These are ground condition codes, press

to switch between codes and

to select the code. The ground condition codes are:
C1 – “Wet Ground”
C2 – “Dry Ground”
C3 – “Snow/Ice Ground”
C4 – “Tarmac Ground”
The selected code does not change the operation of the BrakeCheck, it is just stored and printed later.

Press

again, the unit is now ready to perform the test and the display will show:

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Accelerate the vehicle smoothly to approximately 20kph (13mph).

Without causing the vehicle to skid, apply the Hand Brake firmly and consistently until the vehicle comes to a complete stop as quickly as possible.

The Test is now complete, move the vehicle off the roadway if necessary.

Note: If you have a Quarry type unit a 'hand brake incline' test replaces the normal hand brake test. After pressing Enter to start the incline test, the BrakeCheck shows the detected incline. If the vehicle does not move while the hand brake is on, press Enter again to pass the test. If the vehicle moves, press Menu to fail the test.

At the end of the test (if the unit supports multiple test results) the unit will show what 'log' number the test was stored in, for example:

This means the test result was stored in log number 36. You will have to remember this if you want to recall this result.

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Hand Brake Test Results

If the unit powers down, go to the **Hand Brake Test / Last Test Result** mode and press

then, (or if the unit did not power down),

the **Peak Deceleration (Front/Rear)** LED will now be lit and the display will show a value, eg:

Press

and the **Average Deceleration (Front/Rear)** LED will be lit and the display will show a value, eg:

Press

again, the **Peak Acceleration (Left/Right)** LED will be lit and either the **Vehicle pulls to the Left** OR the **Vehicle pulls to the Right** LED will be lit. The display will show a value, eg:

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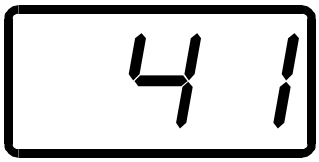
Press

again, the **Stopping Distance (metres)** LED will be lit and the display will show a value, eg:

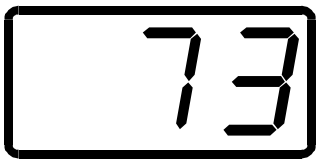
Press

again, the **Test Speed (km/h)** LED will be lit and the display will show a value, eg:



Press

again, the **Brake Efficiency (%)** LED will be lit and the display will show a value, eg:



Press

again, the **Peak Deceleration (Front/Rear)** is displayed again.

These results will be retained until the next Hand Brake test is performed.

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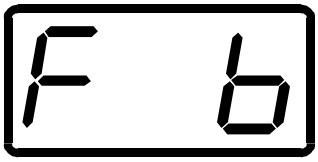
Hand Brake Incline Test (Quarry Unit)

If you have a Quarry type unit, a 'hand brake incline' test replaces the normal hand brake test. The test result will take the form:

This indicates a pass at an incline of 46%. An incline of 100% is 45 degrees.

The following would indicate a failed test at an incline of 6%:



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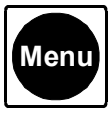
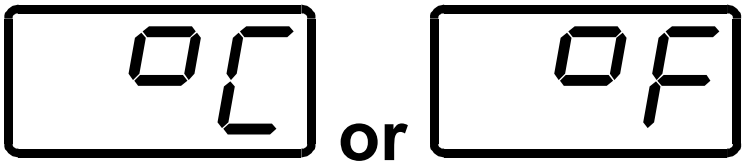
To display the Temperature of the Unit

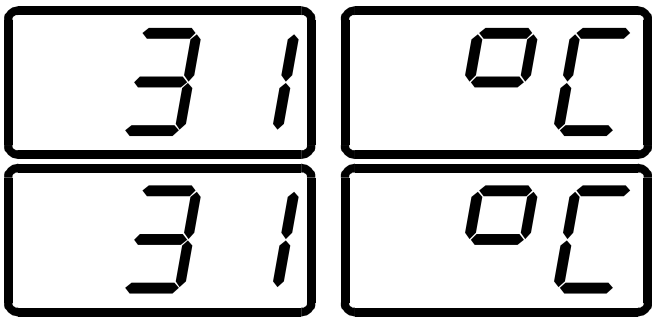
Press 

until the Current Mode is **Temperature** and the display shows the desired temperature scale. i.e.:



Press

once, the display will alternate between the measured temperature and the selected scale, for example:



To now display the temperature in Fahrenheit, or to select another Mode,

Press

until the display and LED indicate the desired Mode.

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Recalling Stored Test Results (units that support multiple test results)

At the end of each test the BrakeCheck will show what 'log' number the test was stored in, for example:

This means the result was stored in log number 36. You will have to remember this if you want to recall the result.

Recalling Brake Test Results

Press

until the Current Mode indicates the test results you wish to view, i.e., **Last Service Brake Test** or **Last Hand Brake Test.**

Press

once, the display will show

Press

once, the latest log number will be displayed. You may select a different log number by pressing

until the required number is displayed, for example:

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Press

once, the **Peak Deceleration (Front/Rear)** LED will be lit and the display will show a value, eg:

The test results have been recalled and you may now scroll thru all the **Displayed Result** values for this test by pressing

repeatedly.

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Printing Test Results (single test units)

The BrakeCheck can output test results to a printer if required. An impact printer is available and is recommended, although any correctly configured printer can be used. A cable is provided with the printer, or an optional Infra-Red link can be used.

To Print using the Cable

Connect the printer to the power pack provided.
Connect the supplied cable to the printer and Brake Check.

If the BrakeCheck has powered-down due to inactivity:

Press

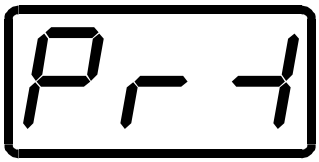
until the Current Mode indicates the test results to be printed. Ie, either **Last…Service Brake Test** or **Last…Hand Brake Test**

Press

once, (this is not necessary if the unit has not powered-down) the **Peak Deceleration (Front/Rear)** LED will be lit and the display will show a value, eg:

Press

once, the display will show:



and the printer will print the results for the last test performed.

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To Print using the Infra-Red Link

Plug the power pack into the Infra-Red receiver. Plug the lead from the receiver into the printer.

If the BrakeCheck has powered-down due to inactivity:

Press

until the Current Mode indicates the test results to be printed: ie, **Last Service Brake Test** or **Last Hand Brake Test**

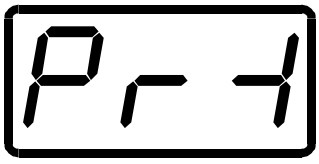
Press

once, (this is not necessary if the unit has not powered-down) the **Peak Deceleration (Front/Rear)** LED will be lit and the display will show a value, eg:

With the BrakeCheck pointing at the Infra-Red receiver,

Press

once, the BrakeCheck will emit a long beep sound, keep the unit pointed at the receiver until a second, short beep is heard. The display will show:



And the printer will print the results for the last test performed.

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Printing Test Results (units that support multiple test results)

The BrakeCheck can output test results to a printer if required. An thermal printer is available and is recommended, although any correctly configured printer can be used. A cable is provided with the printer, or an optional Infra-Red link can be used.

To Print using the Cable

Connect the printer to the power pack provided.
Connect the supplied cable to the printer and Brake Check.

If the BrakeCheck has powered-down due to inactivity:

Press

until the Current Mode indicates the test results to be printed. Ie, either **Last…Service Brake Test** or **Last…Hand Brake Test**

Press

once, the display will show

NOTE: Pressing

at this stage will result in all the stored tests being printed.

Press

once, the latest log number will be displayed. You may select a different log number by pressing

until the required number is displayed, for example:

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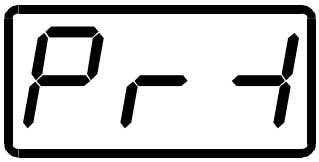
Press

once, (this is not necessary if the unit has not powered-down) the **Peak Deceleration (Front/Rear)** LED will be lit and the display will show a value, eg:

Press

once, the display will show:



and the printer will print the results for the last test performed.

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To Print using the Infra-Red Link

Plug the power pack into the Infra-Red receiver. Plug the lead from the receiver into the printer.

If the BrakeCheck has powered-down due to inactivity:

Press

until the Current Mode indicates the test results to be printed. Ie, either **Last…Service Brake Test** or **Last…Hand Brake Test**

Press

once, the display will show

NOTE: This option allows all the stored test results to be printed, it is unavailable in Infra-Red mode!

Press

once, the latest log number will be displayed. You may select a different log number by pressing

until the required number is displayed, for example:

Press

once, (this is not necessary if the unit has not powered-down) the **Peak Deceleration**

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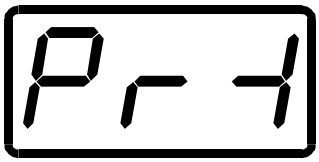
(Front/Rear) LED will be lit and the display will show a value, eg:

With the BrakeCheck pointing at the Infra-Red receiver,

Press

once, the BrakeCheck will emit a long beep sound, keep the unit pointed at the receiver until a second, short beep is heard. The display will show:



And the printer will print the results for the last test performed.

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Explanation of Terms

Peak Deceleration (Front/Rear)

This is the maximum recorded G Force (m/s2) detected during the test, in the front to rear direction. It corresponds to the Peak Brake Efficiency and is expressed as a percentage of one G.

This is the figure to be used in the UK for statutory MOT Testing.

Average Deceleration (Front/Rear)

This refers to the average G Force (m/s2) over the duration of the test, in the front to rear direction.

Peak Acceleration (Left/Right)

This is the maximum recorded G Force (m/s2) detected during the test, in the left or right direction.

NOTE: This feature is included for reference only. There may not be any regulatory data available to determine if a test result should be considered a Pass or Fail result.

Road camber, tyre condition, driver action and so on may cause a test vehicle to pull off centre under heavy braking. If the pull is noticeable, it is suggested that the brake components be checked for signs of wear or leaks etc.

Vehicle pulls to the Left (or Right)

This is an indication of the direction from centre the vehicle is deviating toward during the test.

Stopping Distance (metres):

This is an estimate of the distance the vehicle travels from commencement of braking to complete stop. It is calculated from Average Deceleration and the test time.

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Test Speed (km/h):

This is an estimate of the speed at which the vehicle was travelling when braking was commenced. It is calculated from Average Deceleration and Stopping Distance.

Brake Efficiency:

This is the average brake efficiency figure - an expression of braking performance (%). It is calculated from Test Speed and Stopping Distance and can be compared with some statutory requirements.

It should NOT be used in the UK for the statutory MOT Testing (refer to the Peak Deceleration on the top of the previous page).

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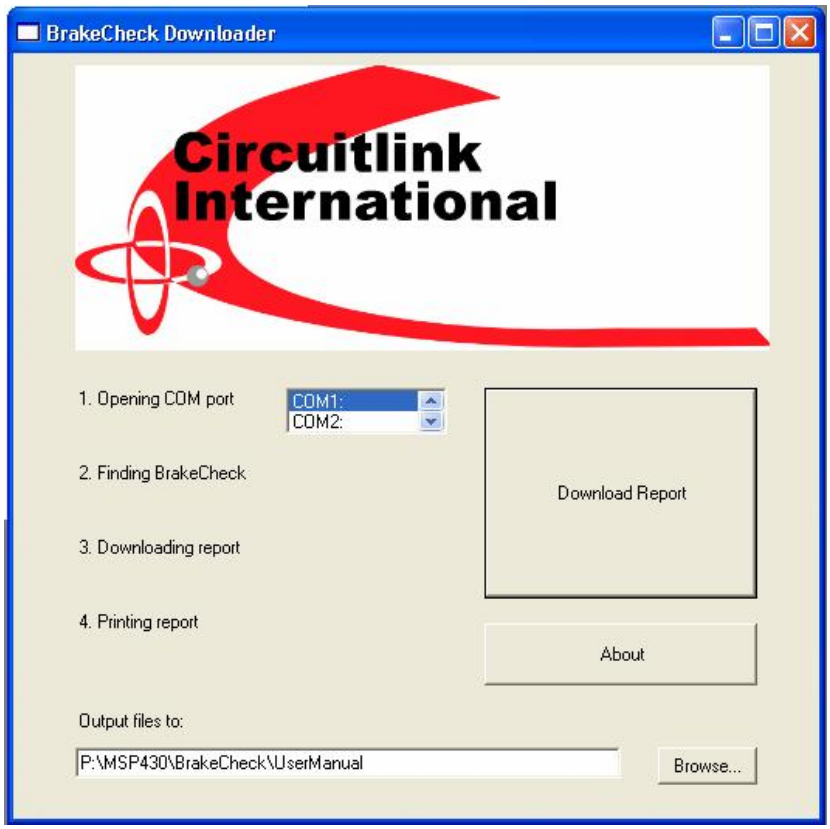
Downloading the test results to your PC

The Downloader software may be used when a printer is unavailable or if you wish to save your test results to file.

Single test units

1. Use the cable provided to connect the BrakeCheck to the PC's RS232 port.

2. Run the BrakeCheck downloader software, you will see this form:



3. Select the appropriate port name from the COM port list, e.g. COM1.

4. Make sure the BrakeCheck is switched on and click the "Download Report" button. You will see this form:

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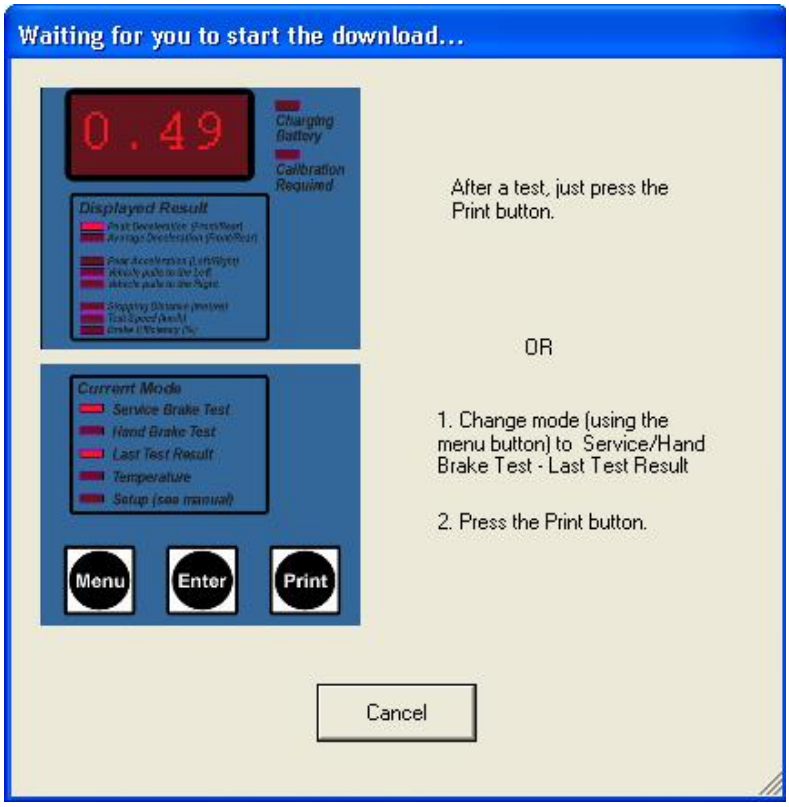

5. Follow the onscreen instructions, after pressing the

button a text document containing the test result will automatically open.

6. The file can be printed to any printer supported by the PC by selecting “Print…” from the “File” menu.

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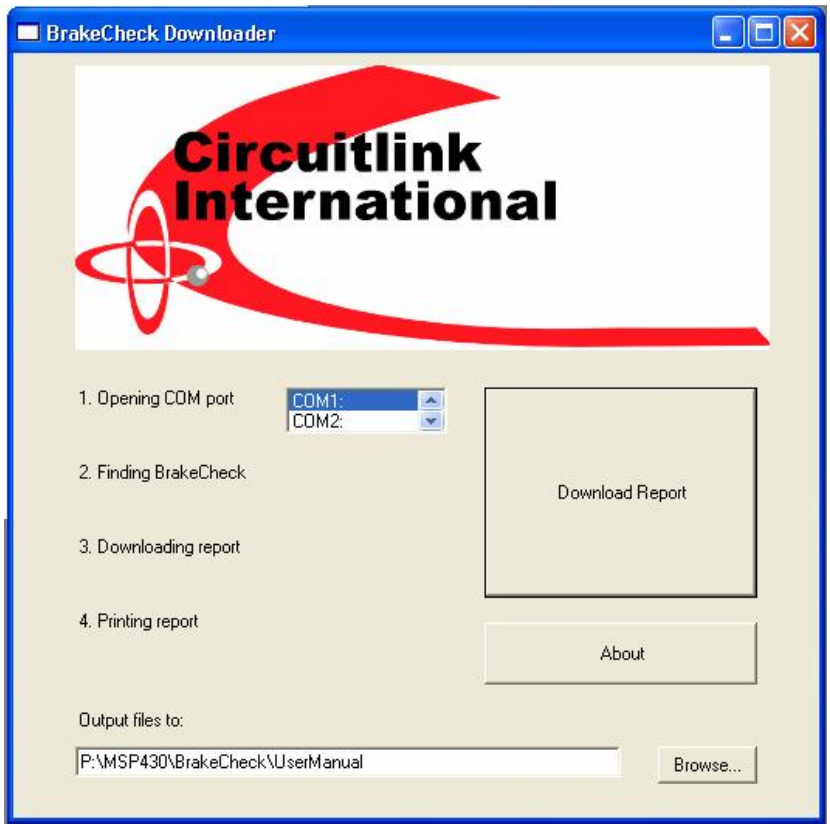
Multiple Test Units

1. Use the cable provided to connect the BrakeCheck to the PC's RS232 port.

2. Run the BrakeCheck downloader software, you will see this form:



3. Select the appropriate port name from the COM port list, e.g. COM1.

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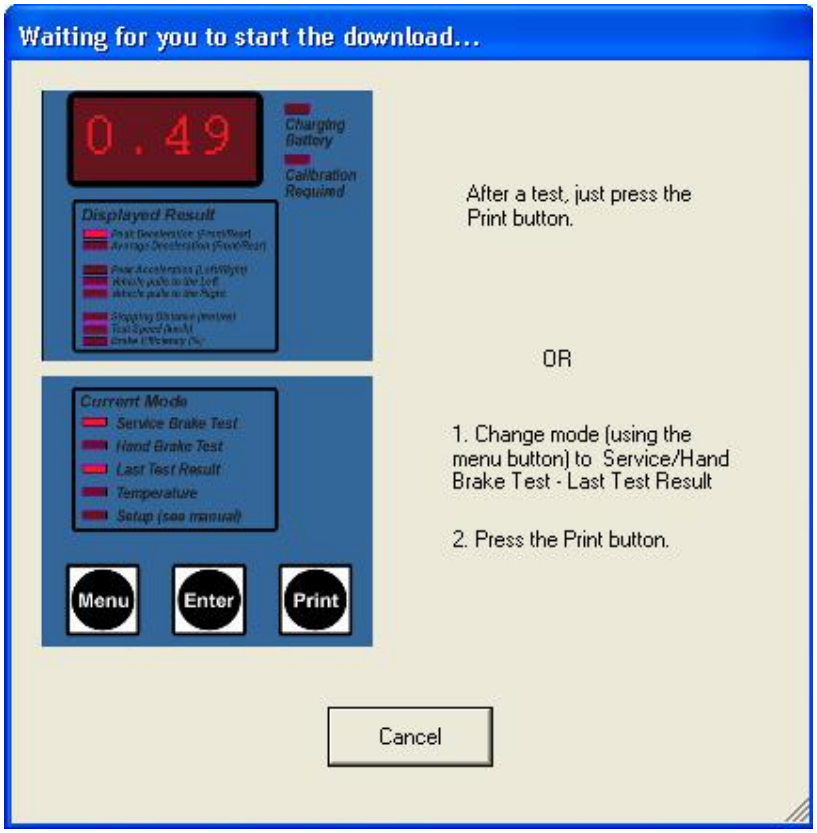
4. Make sure the BrakeCheck is switched on and click the “Download Report” button. You will see this form:



5. If only downloading the latest test result and this test is still being displayed by the BrakeCheck, press the

button and a text document containing the test result will automatically open.

6. Otherwise if the BrakeCheck has powered down, press

until the Current Mode indicates the test results to be downloaded, i.e., either **Last…Service Brake Test** or **Last…Hand Brake Test**

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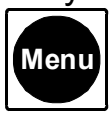
Press

once, the display will show

NOTE: Pressing

at this stage will result in all the stored tests being downloaded.

Press

once, the latest log number will be displayed. You may select a different log number by pressing 

until the required number is displayed, for example:

Press

once, the **Peak Deceleration (Front/Rear)** LED will be lit and the display will show a value, eg:

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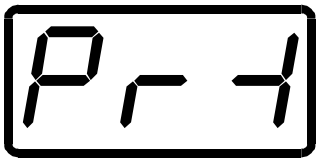
Press

once, the display will show:



and a text document containing the test result will automatically open.

7. The file can be printed to any printer supported by the PC by selecting “Print…” from the “File” menu.

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Interpreting the Print out Results

Please note that the print out generated by your BrakeCheck unit may differ to the example below, the format of the print out is determined by the software version in the unit.

```
      BrakeCheck
      ==========

Serial No:   BRK00000
S/W Version: 1.0.41

      Company ID:
    Circuitlink Int

    Log memory:  1

Test Performed:
11:56:51 13/10/2006
Timezone: IST (+0530 )

  Service Brake Test
  ==================
Front-Back Deceleration
  Peak:          76 %g
  Average:       46 %g
Left-Right Acceleration
  Peak:          32 %g
  Vehicle pulls: LEFT
Test Speed:      20 km/h
Stopping Dist:  3.3 m
Brake Efficiency:47 %

Calibration Ok
  Due: 31/07/2008

.........................
Trailer ID

.........................
Vehicle Registration

.........................
Ground Condition

.........................
Inspector Name

.........................
Signature
```

Designated serial number of the unit
Version of software
Company Information

Memory location where this test is stored (if multiple tests supported)
Date and time of test

Test results

Refer to Explanation of Terms Section

Date next calibration is due

Area to write relevant details

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Warranty

Warranty

The warranty is 12 months from the date of purchase.

Please Note

Deliberate or unintentional damage of the unit may result in the warranty becoming void. Likewise, if the unit is interfered with by anyone other than an authorized service agent, the unit will not be covered under this warranty.

Calibration

Please refer to the Calibration Certificate for the unit's next calibration due date. The BrakeCheck will blink the "Calibration Required" indicator as a warning that the unit must be calibrated soon. If the "Calibration Required" indicator is on solid then the unit must be calibrated immediately.